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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/576,727	05/23/2000	Chad A. Cobbley	3639.1US (97-1383.1)	3108
7590	03/09/2006		EXAMINER	
James R. Duzan Trask Britt P O Box 2550 Salt Lake City, UT 84110			TRINH, MINH N	
			ART UNIT	PAPER NUMBER
			3729	

DATE MAILED: 03/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

SP

Office Action Summary	Application No.	Applicant(s)	
	09/576,727	COBBLEY ET AL.	
	Examiner	Art Unit	
	Minh Trinh	3729	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-20,22,23 and 25-34 is/are pending in the application.
- 4a) Of the above claim(s) 9-17 and 26-34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3,5,6,8,18-20,22,23 and 25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/30/05 has been entered.

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-3, 5, 6, 8, 18-20 and 22, 23 and 25 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. In this case the Specification does not described whether "a stencil plate having through holes which having a diameter in the range of about two diameters of a conductive sphere to about ten diameters of a conductive sphere " as recited in each of claims 1, lines 6-7 and 18, lines 8-9, etc.

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4. Claims 1-3, 5, 6, 8, 18-20 and 22, 23 and 25 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The limitation recites: " surface of said substrates said through holes having a diameter in the range of about two diameters of a conductive sphere to about ten diameters of a conductive sphere" (see amended claims 1 and 18) is incorrect because the drawings and specification do not describe the above configurations. At best the specification (page 9, lines 19-26) and related Fig. 4 discloses a bottom opening of the hopper 50/50A having the above configurations but not the conductive sphere.

Therefore, the newly amended subject matter such as "surface of said substrates said through holes having a diameter in the range of about two diameters of a conductive sphere to about ten diameters of a conductive sphere" is vague and indefinite.

It is unclear whether "a conductive sphere" (claim 1, line 7, claim 18, lines 8-9) is the at least one of the plurality conductive sphere of claim 1, line 1, and further whether a second concurrent "a conductive sphere" (claim 1, line 7, claim 18, lines 8-9) is as same as "a conductive sphere" in prior to it (see claim 1, line 7, claim 18, lines 8-9).

5. Claims 1-3, 6, 8, 18-20, 22, 23 and 25, as best understood are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakemi et al (US 5,655,704)

Sakemi et al disclose an apparatus or an assembly system for placing a plurality of conductive spheres on a substrate comprising: a stencil plate 4 with upper and lower surfaces and a first pattern of plurality of through holes 4a, said stencil plate configured

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to place a plurality of conductive spheres 3 in said first pattern on a approximate surface of the substrate 2(see Figs. 3-4); a hopper (container 12) extending across at least a portion of the upper surface of said stencil plate 4 and closely spaced (gap between 12 and surface of 4) therefrom to maintain control over all the spheres therein (see Fig. 4, col. 4, lines 28-36) the hopper 12 having a bottom opening with a dimension extending across the first pattern for dispersing said spheres into the through holes 4a of the stencil plate 4 and a position apparatus 8 (see Fig. 1) for moving the hopper 12 over the first pattern relative to the stencil plate 4 (see Fig. 4) for place said spheres into said through holes 4a onto the proximate surface of said substrate 2 (see Fig. 4). Sakemi et al do not teach the through hole of the stencil having a diameter in the range of about 2-10 of a conductive sphere. However, it would have been an obvious matter of design choice to choose any desired stencil diameter configurations including size and shape requirements since applicant has not disclosed that the claimed through hole of the stencil having exact a diameter in the range of about 2-10 of a conductive sphere size where solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the stencil plate through hole configurations as shown in Fig. 4 of the Sakemi et al reference.

As applied to claims 2-3 and 6, Sakemi et al teach the spheres being dropped and passed downwardly through the through holes by gravitation force as recited in claim 2 (see Fig. 4 which shows the solder balls being gravity fed into the mounting pads of the substrate 2); and the limitations of claims 3 and 6 (refer to Fig. 4 and the discussion at col. col. 4, lines 28-36).

As applied to claim 8, Sakemi et al teach the stencil 4 is being placed apart from the substrate 2 (see illustration of Fig. 4).

As applied to claim 5 and 22, Sakemi et al do not teach the first pattern holes diameter is greater than the diameter of each of the spheres by up to 1mm. With respect to the above configurations, it would have been an obvious matter of design choice to choose pattern holes diameter greater than the diameter of the spheres, since applicant has not disclosed that the exact size configurations as described above is critical which would solve any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the with the size configurations as disclosed by each of the prior art references (i.e., see Fig. 4 of Sakemi et al, which shows the pattern holes 4a being greater that the diameter of the spheres 3, etc).

As applied to claims 19-20 and 23, Sakemi et al teach the spheres being dropped and passed downwardly through the through holes by gravitation force as recited in claim 19 (see Fig. 4 which shows the solder balls being gravity feed into the mounting pads of the substrate 2); and the limitations of claims 20 and 23 (see Fig. 4, and the discussion at col. col. 4, lines 28-36).

As applied to claim 25, Sakemi et al teach the stencil 4 being placed apart from the substrate 2 (see illustration of Fig. 4).

Response to Arguments

6. Applicant's arguments are acknowledged.

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Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Minh Trinh whose telephone number is (571) 272-4569.

The examiner can normally be reached on Monday -Thursday 8:00 am to 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on (571) 272-4690. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

mt

3/6/06



Minh Trinh

Primary Examiner